T. F. JOHNSON, Jr.

SNAP CLAMP OR GRIP FOR ELECTRICAL CONDUCTORS.

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1,244,339.

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Fig. 1.

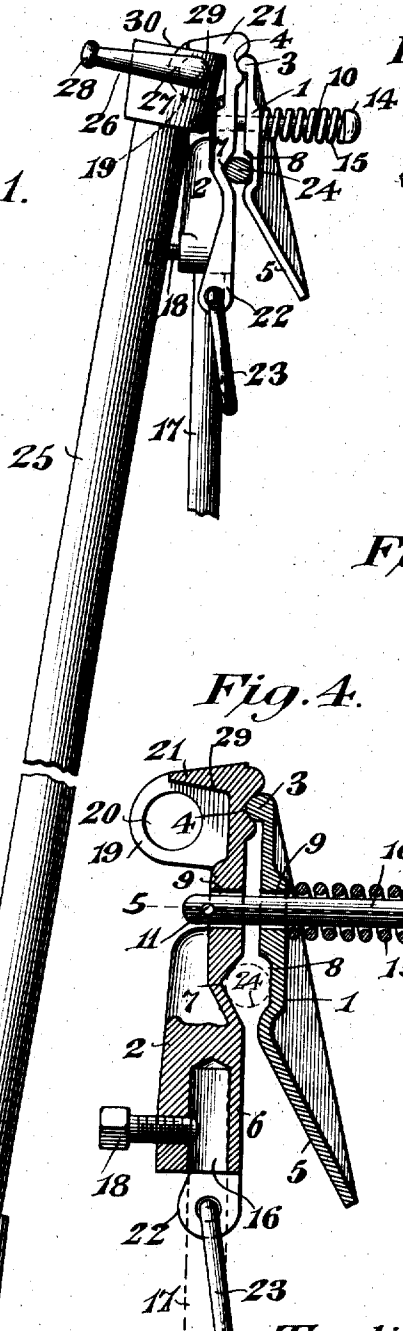


Fig. 2.

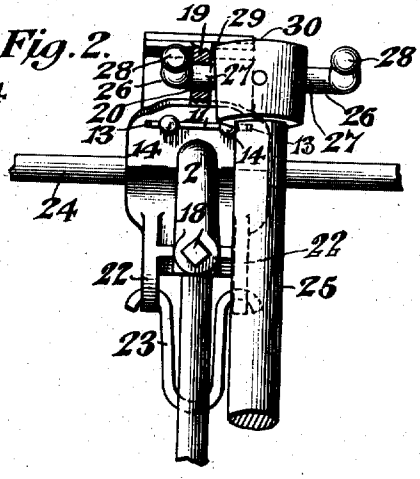


Fig. 3.

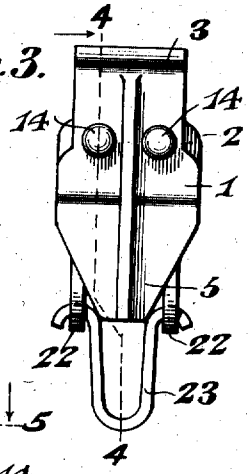
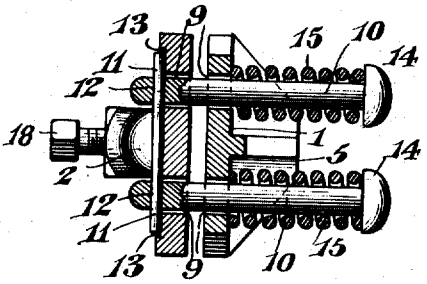


Fig. 4.

Fig. 5.



WITNESSES

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SNAP CLAMP OR GRIP FOR ELECTRICAL CONDUCTORS.

1,244,339. Specification of Letters Patent. Patented Oct. 23, 1917.

Application filed January 22, 1917. Serial No. 143,723.

To all whom it may concern:

Be it known that I, TOMLINSON F. JOHNSON, Jr., a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Snap Clamp or Grip for Electrical Conductors, of which the following is a specification.

This invention relates to a snap clamp or grip for electrical conductors, and is an improvement upon the invention embodied in Letters Patent No. 1,172,604, granted to me February 22, 1916.

A few of the advantages possessed, and the uses to which my improved snap clamp can be put are fully discussed in the Letters Patent above mentioned, and need no further elaboration here.

One object of the present invention is to provide a construction which will eliminate binding between the clamping jaws and the bolts which serve as supports for the springs which press the jaws together.

Another object of the invention is to provide a construction which will allow the ready separation of the jaws of the clamp in repairing the same, or when it is desired to solder a conductor to one of the jaws whereby heating of the springs is prevented.

Another object of the invention is to provide a three point contact which will always engage the conductor and grip the same, making a perfect contact irrespective of defects in the cross sectional shape of the conductor.

A further object of the invention is to provide a construction by which the clamp can be easily and quickly placed upon and removed from an overhead conductor by means of a handling stick.

A further object of the invention is to provide a loop at the bottom of one of the clamping jaws, whereby it is possible for the clamp to be handled by two men with a stick each, the provision of the loop forming a construction which is especially advantageous in handling clamps in close places, or when the man whose stick is in the eye is in such a position that he cannot exert a downward pressure or pull on the clamp.

In the drawings, I have illustrated one embodiment of my invention, in which:

Figure 1 is a side elevation showing the handling stick applied thereto with the conductor in section.

Fig. 2 is a front elevation of the same.

Fig. 3 is a rear elevation.

Fig. 4 is a sectional elevation on the line 4—4 of Fig. 3, looking in the direction of the arrows.

Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 4, looking in the direction of the arrows.

In the embodiment of the invention here shown, there is provided a pair of jaws 1 and 2. The upper edge of the jaw 1 is provided with a transverse rounded bead 3, and the upper portion of the jaw 2 is provided with a rounded recess 4 into which the bead extends and obtains a seat, thereby forming a detachable hinge connection which is held in place by a spring, as will be more fully described hereinafter.

At an intermediate portion of the side of the jaw 2 there is provided a transversely extending V-shaped groove 7, whose side walls constitute two points of contact with the conductor. The opposite face of the jaw 2 is provided with a wide transversely extending groove 8 having a straight wall constituting a single point of contact for the conductor. As shown in Fig. 4, the conductor is engaged by the walls of the grooves 7 and 8 at three points. This is especially advantageous for the reason that irrespective of the size, shape, or unevenness of the conductor, the jaws will tightly clamp the conductor within the grooves along three lines at all times whereby a perfect contact is insured.

Between the grooves 7 and 8, and the hinge formed by the bead 3 and the recess 4, the opposed inner faces of the jaws are plane and are spaced from each other. Below the grooves the inner face 6 of the jaw 2 is plane and located in vertical alinement with the upper plane face of the jaw, while the inner face 5 of the jaw 1 is diverged outwardly at an incline, forming with the lower portion of the other jaw a substantially V-shaped or flared entrance or mouth for directing the clamp over the conductor in applying the same.

In order to mount the springs, the plane portions of the jaws between the hinge and the grooves 7 and 8 are provided with openings 9 through which bolts 10 loosely extend. These bolts are retained in position in the present construction, by means of a pin or round wire key 11 loosely extending

through an opening 12 in one end of each bolt, and lying in a transverse groove 13 provided at the outside of the jaw 2. The opposite ends of the bolts are provided with heads 14, between which and the jaw 1 are interposed springs 15 which tend normally to close the jaws. Inasmuch as the pin 11 extends transversely of and is parallel with the hinge of the clamp, the bolts are allowed a limited pivotal movement, which prevents binding between the jaws and the bolts, and making it easier to apply and remove the clamp to and from the conductors. The construction is especially advantageous when the jaws are separated to their maximum open position to attach the clamp to large conductors, where the tendency of the jaws to bind on the bolt would be the greatest. The pin 11 is also easily removed, whereby the jaws may be quickly separated and taken apart for repairs if desired.

The lower end of the clamping jaw 2 is provided with a vertically disposed recess 16 into which may be soldered a suitable conductor or cable 17. This conductor may be further retained in position by means of the set screw 18.

At the upper end and at the outside of the jaw 2 a central perforated lug or transverse eye 19 is provided with an opening 20. Extending transversely of and co-extensive with the upper edge of the jaw 2, and at right angles to and above and overhanging the eye 19 at each side is a horizontal integral flange 21, which constitutes a stop or lock. The lower end of the clamping jaw 2 is provided with a pair of depending lugs 22 to which is hingedly attached a loop 23, the normal position of which is bearing against one side of the cable 17.

In order to apply my improved snap clamp or grip to a conductor 24, as illustrated in Figs. 1 and 2, there is provided a special handling stick 25. This stick adjacent one end is provided with outwardly extending hooks 26, which comprise portions 27 extending radially and outer retaining portions 28 at an angle thereto. To hook the stick to the eye 19, the free end of the portion 28 is inserted through the opening thereof, and the stick is rotated, whereby the radial portion 27 engages the eye, as shown in Fig. 2. It should be noticed in this connection, that the lower side 29 of the flange 21 is beveled and engages the top 30 of the stick and prevents the clamp from turning about the head of the stick, so that a downward pull upon the snap clamp will cause the conductor to be securely clamped, as shown in Fig. 1. This method of handling and applying the clamp to the conductor makes it possible to snap the clamp onto a conductor or unsnap and take it off by means of the eye and is a decided advance over the construction disclosed in the Letters Patent mentioned above, in which the flange was lacking and it was impossible to attach the clamp to the conductor by means of the eye.

The loop 23 at the bottom of the clamp makes it easier for the clamp to be handled by two men each with a stick similar to 25, one stick being caught in the eye 19 and the other in the loop 23. This is necessary in handling the clamps in close places, or when the man whose stick is in the eye is in such position that he cannot exert a downward pull on the clamp. Ordinarily, a single man can place and remove the clamp using the stick to engage the eye 19 in the manner explained.

While I have shown and described one embodiment of my invention, it is to be understood that I do not desire to be limited to the details of construction herein shown and described for obvious modifications will be apparent to anyone skilled in the art.

What is claimed is:—

1. In a clamp, a pair of spring-pressed clamping jaws, one of said jaws having a transverse eye provided on the outside thereof, and a flange or stop on said jaw contiguous to said eye adapted to engage a handling stick to prevent the relative rotation of the stick and clamp.

2. In a clamp, a pair of spring pressed clamping jaws, one of said jaws having an eye provided upon the outside thereof, substantially midway of the sides of the jaw and near the top, and a flange or stop upon said jaw above said eye and at each side thereof and adapted to engage a handling stick to prevent the relative rotation of the stick and clamp.

3. In a clamp for electrical conductors, a pair of rigid jaws each having a transverse inner groove, resilient means tending to close said jaws, an eye on the outside and near the upper end of one of the jaws for raising and lowering the clamp into engagement with an overhead conductor, a transversely extending flange or stop provided on said jaw contiguous to and above said eye, said eye being disposed in the longitudinal center of the jaw and said flange or stop being co-extensive with the upper edge of said jaw.

4. In a clamp, a pair of spring-pressed clamping jaws, one of said jaws having a transverse eye provided on the outside thereof at the upper end, a stop or lock contiguous to said eye adapted to engage a handling stick in applying the clamp, a hinge connection between the two jaws at the upper end, the lower ends of the jaws being provided with a flared mouth or entrance, means on one of the jaws for attaching a cable thereto, and a hinged loop provided on said jaw and depending from the

same, said loop being located on one side of the cable.

5. A clamp for electrical conductors, comprising a pair of rigid jaws with a substantially V-shaped entrance therebetween, headed bolts loosely passed transversely through the jaws, coiled compression springs surrounding the bolts and working against the heads thereof and the jaw next thereto, the other jaw being formed with a groove in its outer face and a key passed through the bolts and resting in the groove.

6. A clamp for electrical conductors, comprising a pair of rigid jaws with a substantially V-shaped entrance therebetween, headed bolts loosely passed transversely through the jaws, coiled compression springs surrounding the bolts and working against the heads thereof and the jaw next thereto, the other jaw being formed with a groove in its outer face, a key passed through the bolts and resting in the groove, depending eyes formed on one of said jaws and a loop hingedly mounted in said eyes.

7. In a clamp for electrical conductors, a pair of rigid jaws having a hinged connection at the upper end, a bolt loosely extending through said jaws and provided with a head at one end, a transverse pin extending through said bolt at the opposite end thereof, one of the jaws being formed with a groove in its outer face for receiving the pin, the groove being extended only a distance equal to the length of the pin with the ends of the groove closed, and a spring interposed between said head and the other jaw whereby when the jaws are separated to their maximum position binding between the jaws and bolt will be prevented by the bolt turning on the pin.

8. In a clamp for electrical conductors, a pair of rigid jaws having a hinged connection at the upper end, a bolt loosely extending through said jaws and provided with a head at one end, a transverse pin extending through said bolt at the opposite end thereof, one of the jaws being formed with a groove in its outer face for receiving the pin, the groove being extended only a distance equal to the length of the pin with the ends of the groove closed, a spring interposed between said head and the other jaw whereby when the jaws are separated to their maximum position binding between the jaws and bolt will be prevented by the bolt turning on the pin, and means on one of the jaws for receiving a conducting cable.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

TOMLINSON FORT JOHNSON, JR.

Witnesses:
C. WARREN JOHNSON,
E. B. HOOK, Jr.